Do You Know?

Snowflakes, caught in the air in a quickly drying plastic solution, are preserved for scientists studying snow-crystal forms.

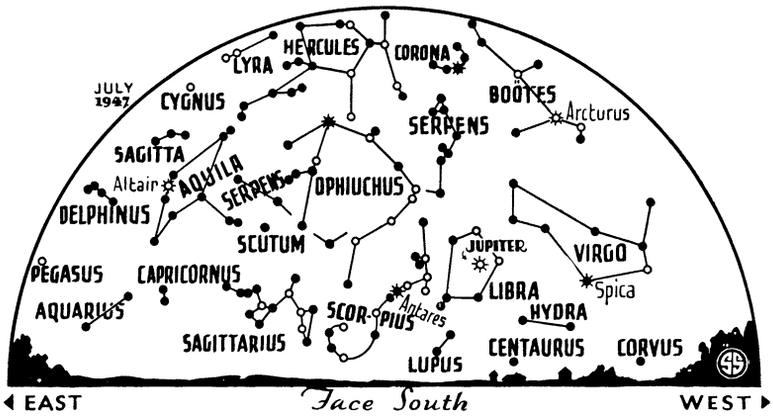
American *steel* industry depends largely on iron ore from the Mesabi region in Minnesota; this high-grade ore, used to produce about 85% of the steel made, is shipped by water from western Lake Superior to Lake Erie ports.

Calcium cyanamide, which is made in one process of fixing atmospheric nitrogen to manufacture fertilizer and explosives, was produced in Germany at low cost by a continuous rotary furnace process.

When tomatoes are raised to make *catsup,* high acid content is desirable to give sprightly flavor; potash applied as a fertilizer to the growing crop will increase the acid in the tomatoes produced.

Wartime developments in the use of *aluminum* have boosted it into a position of the second-rating metal of peacetime industry in terms of volume produced; iron, including steel, is number one.

Among American common *vegetables,* cabbage, carrots, beets, peas, cucumbers and cantaloupes are of Old World origin; potatoes, tomatoes, green peppers, pumpkins, and most squashes and beans were originally New World products.



☼ ✱ ○ • SYMBOLS FOR STARS IN ORDER OF BRIGHTNESS

cules, just west of Lyra. Hercules, you will recall, performed twelve classic labors, of which the fifth was to kill the birds of Lake Stymphalis. Aquila is sometimes considered to represent one of these birds, and Sagitta is the arrow he used, still shown in flight towards its prey. However, it has also been made the arrow of Cupid!

On the opposite side of Aquila, just above Sagittarius, one star is shown marking the shield, Scutum. This is a relatively modern constellation, having first been shown on the star maps published in 1690 by the Polish brewer and amateur astronomer, Johannes Hevelius. He called it "Sobieski's Shield," to honor the third John Sobieski, king of Poland. A distinguished soldier, he commanded the troops who freed Vienna from the Turks in 1683, so it is not surprising that the loyal Hevelius seven years later honored him with a constellation to fill a part of the sky which up to then had been empty.

Another of Hevelius' constellations is that of Canes Venatici, the hunting dogs, in the curve formed by the handle of the Great Dipper. Also to him we must give credit for Lacerta, the lizard, now seen in the northeast, and represented on the maps by a single star; Leo Minor, in the northwest, and several others not shown.

* * *

Celestial Time Table For July

July	EST	
3	5:38 a. m.	Full moon
	10:00 p. m.	Moon farthest, 252,500 miles
5	5:00 a. m.	Earth farthest from sun, 94,451,000 miles
11	5:54 a. m.	Moon in last quarter
14	1:00 p. m.	Mercury passes sun
	11:56 p. m.	Moon passes Mars
17	12:40 a. m.	Moon passes Venus
	6:00 p. m.	Moon nearest, 222,000 miles
	11:15 p. m.	New moon
18	9:50 p. m.	Moon passes Saturn
22	4:00 a. m.	Mercury passes Venus
24	5:54 p. m.	Moon in first quarter
26	1:41 a. m.	Moon passes close to Jupiter
28	early a. m.	Meteors of delta Aquarid shower visible
31	1:00 a. m.	Moon farthest again, 252,400 miles

Subtract one hour for CST, two hours for MST, and three for PST.

Add one hour for the corresponding Daylight Saving Time.

Science News Letter, June 28, 1947

BIOLOGY

Diatoms Collect Copper

➤ COPPER is collected by one-celled sea plants known as diatoms in concentrations that are scores of times strong enough to kill them—in theory at least.

Analysis of these microscopic vegetable junkmen made by an English scientist, N. Ingram Hendey of the Admiralty Central Metallurgical Laboratory, shows that several different species contain anywhere from 31 to 164 parts per million of copper by weight. By way of contrast, Mr. Hendey mentions that one-half part of copper per million is considered to kill the plants' freshwater relatives that sometimes make trouble in city water systems. The sea water in which the specimens were collected for analysis contained only seven parts per billion of copper.

What these micro-plants do with their copper collections has not yet been determined. Mr. Hendey suggests that it may either be chemically shelved as a precipitate or coagulate, or that it may have some functional role in the plant-cells' pigment bodies.

In his communication to *Nature,* (May 10), Mr. Hendey does not mention a possible connection between this copper-

collecting activity of diatoms and the high copper concentration in oysters, which feed largely on diatoms. It has been known for some years, for example, that oysters in the infant phase of their lives will not settle down and start growing shells unless there is a trace of copper in the water over their beds.

Dr. Paul Galtsoff, of the U. S. Fish and Wildlife Service's fisheries laboratory, expressed lively interest in a possible connection between copper in diatoms and copper in oysters. Oysters, he said, have a tolerance for copper far beyond their known physiological requirement for the metal. Some of the laboratory tanks with which he works have copper or brass fittings, and the oysters in them absorb so much copper directly from the water that they turn green. He added that oysters often have far greater quantities of zinc than of copper in their bodies, but nobody has yet found out what they do with it.

Science News Letter, June 28, 1947

PLANT PATHOLOGY

Blight-Resistant Potato Is New Variety Produced

➤ BLIGHT-RESISTANT potatoes, able to defy the fungus disease that ruins millions of bushels yearly and that a century ago caused famine in Ireland, seem at last to be realized. Dr. D. K. Reddick, Cornell University plant pathologist, has produced several new varieties by crossing cultivated potatoes with a wild species from South America.

In 1927, after ten years of vain search for an immune variety, Dr. Reddick broadcast an appeal through the press. A farmer in northern New York, Fred Ashworth, responded with this South American species, which he had imported in an effort to get a frost-proof potato and had found to be blight-proof instead.

Dr. Reddick found the South American potato worthless as a crop plant, but was able to hybridize it with good cultivated varieties in such a way as to produce a number of varieties that are expected to prove profitable as well as immune to the blight.

One of the new varieties he has named Ashworth, in honor of the man who gave him the South American parent strain. Others are called Chenango, Empire, Essex, Fillmore, Hartford, Madison and Snowdrift. Test lots of the new varieties are now being tried out at a number of experiment stations, including one in Costa Rica.

Science News Letter, June 28, 1947

CHEMISTRY

Rubber Fibrils Squeeze Out Drops When Stretched

➤ RUBBER DEPENDS for its elasticity on its ability to squeeze liquid droplets out of its micro-fibrillar structure when stretched. Other elastic substances have the same micro-structure, with minute fibers enmeshing a liquid.

This was one of the findings laid before members of the American Chemical Society in Palo Alto, Calif., by Prof. E. A. Hauser of the Massachusetts Institute of Technology and Dr. D. S. le Beau of the Midwest Rubber Reclaiming Company. In their research they used an ultramicroscope, which is a quartz-lensed instrument using short-wave ultraviolet instead of visible light. It does not give as high magnification as the electron microscope but on the other hand spares the specimen the destructive bombardment of the electron stream.

The same soap or other detergent that takes grease and dirt out of fabrics can help get otherwise insoluble dyes into them, Prof. James W. McBain of Stanford University reported to the American Chemical Society. Less than one per cent of a "solubilizing" detergent will help the dye to take hold. A similar phenomenon has been observed in nature, he pointed out, in the transportation of the insoluble vitamins A and K in the body fluids.

Associated with Prof. McBain in this study were A. G. Wilder and R. C. Merrill, Jr.

Science News Letter, June 28, 1947

ENGINEERING

Stream Pollution Costly Even If Waste Is Used

➤ INDUSTRIAL wastes or sewage which pollute a stream are costly, even when useful by-products such as fertilizer are recovered, Prof. George E. Barnes of the Case School of Applied Science told the American Society of Mechanical Engineers meeting.

More and more, industry can expect to have to bear some of the costs of this national problem, Prof. Barnes warned.

Polluting streams with wastes from industry runs up a bill of millions of dollars each year, he explained. The old idea, made famous by the French author, Victor Hugo, in his classic "Les Miserables," that recovering wastes such as sewage by chemical treatment can produce by-products to foot the bill is not true, Prof. Barnes declared.

The income from by-products of sewage and other industrial wastes will reduce the costs of stream pollution, but it will not pay the whole cost.

Stream pollution, the speaker explained, creates "indigestion or disease" of a river. The cure is expensive. Sewage must be treated. Sewage-borne solids must be removed or treated. When sludge, scum, grit or screenings are removed from the polluted stream, there is still the problem of disposing of this waste.

While there are standard treatments for sewage pollution of streams, Prof. Barnes said that industrial wastes sometimes create unusual problems. Such wastes from industry as oil, acids, cyanides or metals require special treatments.

In one state, Pennsylvania, alone, the estimated needs in industrial waste treatment plants have been estimated at $35,000,000.

The trend is toward industries directly bearing at least part of the cost of stream pollution, Prof. Barnes stated.

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